REMARKS

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested. Entry of this Amendment Under Rule 116 is merited as it raises no new issues and requires no further search.

Claims 1-4, 7-10, and 12-15 remain pending.

The rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Burt et al. (U.S. Patent 6,999,662) in view of Yagi et al. (U.S. Patent 6,268,884) and further in view of Takiguchi et al. (U.S. Patent 6,549,681) is hereby traversed.

First, Burt fails to describe determining regions of interest in order to overlap two images based on detected edges. Burt specifically states that the "alignment process assumes that each consecutive image has some portion . . . in common with the preceding image," but fails to describe any determination of regions of interest whether or not based on detected edges. Burt at column 17, lines 45-47. That is, Burt fails to describe that the referenced alignment process differs from the previously described coarse-to-fine alignment process at column 6, line 30 through column 10, line 48 of Burt which differs from the present claimed subject matter.

Further still, the section relied on by the Examiner relates to a real-time transmission system, i.e., a mosaic based compression system, for efficient transmission of the image information over a band-limited transmission channel. Burt at column 14, lines 50-51. This is different from the subject matter of the claimed invention as in Burt the most recent image and a predicted mosaic are combined to form an updated mosaic. A sequence of individual frames are not combined in the identified section of Burt to form an image displaying an area as claimed in claim 1. The Examiner appears to be improperly picking and choosing different unrelated portions of the reference based on improper hindsight based on applicant's disclosure. Based on either of the foregoing reasons, the rejection should be withdrawn.

The Examiner admits that Burt fails to disclose detecting edges of an object in the first and second frames and correlating regions of interest by comparing each region of interest to

each other region of interest. The Examiner attempts to overcome these deficiencies by combining Burt with Yagi and Takiguchi.

At the outset, the Examiner's reliance on Yagi is misplaced as the reference fails to describe a computer-implemented method instead relying on a specialized optical apparatus for extracting an outline from an image. "The outline image extracting means 4 is a spatial light modulating element consisted of a photoconductive member and a light modulating element." Yagi at column 5, lines 18-20. Based thereon, the disclosure of Yagi does not relate to a computer-implemented method and is inapplicable to the present claimed subject matter and not combinable with either Burt or Takiguchi.

Second, the Examiner asserts that a person of ordinary skill in the art at the time would combine the Yagi edge detection with Burt in order to outline the objects to compensate for the roughness of edges. However, Yagi is directed to reducing the pixel count of the image sensing apparatus and the corresponding memory requirements and not to creating an image mosaic from a sequence of images. That is, Yagi reduces the memory and pixel requirements for a charge-coupled device (CCD) used in a camera by capturing the same image information using a reduced pixel count CCD for detecting color and tone and an outline extracting sensor for extracting an outline image with higher pixel resolution. The edge roughness referred to in Yagi is a direct result of the Yagi manner of image capture and not directly applicable to Burt. Burt operates in a different manner from Yagi and already includes a compression system for reducing the image information for storage and transmission. There is no teaching or suggestion in Yagi of a motivation to replace the existing compression system of Burt with the Yagi compression system. Stated another way, there is no motivation or suggestion in either reference suggesting or motivating the combination of Yagi with Burt. Based on at least this reason, the rejection should be reversed.

Third, the Examiner asserts that Takiguchi discloses the correlation of regions of interest by comparing each region of interest to each other region of interest and that the correlation is performed using the comparison of regions from one frame to the next. The Examiner further

asserts that a person of ordinary skill in the art at the time would be motivated to combine Takiguchi with Burt "in order to ensure that the correct regions are going to be overlapped to accurately create the correct mosaic." Final Office Action at page 3, lines 13-15. Each of these assertions is incorrect.

With respect to Takiguchi correlating regions of interest, Takiguchi describes determining a difference between a template image designated by a user and a search range in a second image. Takiguchi at column 32, lines 47-49. This is not the same as correlating determined regions of interest between two individual frames as the regions of interest are not determined based on edge detection. As described above, Yagi fails to teach edge detection usable in combination with Burt and as admitted by the Examiner Burt fails to teach edge detection.

With respect to Takiguchi performing correlation using the comparison of regions from one frame to the next, Takiguchi describes comparing a user designated point in a first frame with points in a search range surrounding the user-designated point in a second frame. That is, Takiguchi does not describe a comparison of regions, much less regions of interest based on edge detection as described above, between frames, rather Takiguchi describes comparing a point to points in a search range surrounding the point in a second frame.

For either of the above reasons, Takiguchi fails to cure the above-noted deficiencies of Burt and Yagi and the rejection should be withdrawn.

For any of the above reasons, the present claimed subject matter is not rendered obvious by the applied combination of Burt, Yagi, and Takiguchi and the rejection should be withdrawn.

Claims 2-4 and 7-12 depend from claim 1, include further important limitations, and are patentable over the applied combination of references for at least the reasons advanced above with respect to claim 1. The rejection of claims 2-4 and 7-12 is respectfully requested to be withdrawn.

With particular reference to claim 8, the rejection of claim 8 under 35 U.S.C. 103(a) as being unpatentable over Burt in view of Yagi and Takiguchi is hereby traversed for at least the reasons advanced above with respect to claim 1 from which claim 8 depends. Further, the Examiner appears to have incorrectly interpreted both column 5, lines 21-24 and Figure 5 of Yagi and Figure 28, steps S1303 and S1304 of Takiguchi.

With respect to Yagi, the Examiner asserts that the identified portion of Yagi describes following adjacent pixels until an off pixel is detected and repeating the process for the entire image. Contrary to the Examiner's assertion, Yagi fails to describe the claimed method steps. Yagi describes the outline image extracting means as a spatial light modulating element achieved by a method using a light intensity dependency of a polarizing angle or using a difference of a motion degree of an electron and hole. Neither of which performs the step of following adjacent on pixels until an off pixel is detected, as claimed in claim 8.

With respect to Takiguchi, the Examiner asserts that the identified portion of Takiguchi describes counting a number of pixels and comparing the total to a threshold. Contrary to the Examiner's assertion, a careful reading of Takiguchi reveals that S1303 and S1304 of Takiguchi are directed to counting a number of matching points between frames in order to determine the type of synthesization process to be used, i.e., fully automatic, automatic, and semi-automatic. This is not the same as the claimed "counting a number of on pixels and if above a preset threshold, designate as a structure" as claimed in claim 8. First, there is no counting of on pixels performed in the Examiner-identified portion of Takiguchi. Second, Takiguchi fails to designate a structure based on counting a number of on pixels above a preset threshold.

For any of the above reasons, the rejection of claim 8 should be withdrawn.

With particular reference to claim 10, the rejection of claim 10 under 35 U.S.C. 103(a) as being unpatentable over Burt in view of Yagi and Takiguchi is hereby traversed for at least the reasons advanced above with respect to claim 1 from which claim 10 depends. Further, the Examiner has not provided the requested factual basis and/or technical reasoning reasonably supporting the determination that the allegedly inherent characteristic necessarily flows from the prior art teaching. Applicant reiterates the previously submitted request that the Examiner either support the assertion of inherency or withdraw the rejection. The Examiner has failed to identify any support in the reference for the assertion that the "in the process of creating this line the pixel values are changed in order to compensate for the roughness of edges, thereby avoiding the use of these pixels in future structures." Final Office Action at page 5, section 9. For at least this reason, and the reasons advanced above with respect to claim 1, the rejection is respectfully requested to be withdrawn.

With particular reference to claim 12, the rejection of claim 12 under 35 U.S.C. 103(a) as being unpatentable over Burt in view of Yagi and Takiguchi is hereby traversed for at least the reasons advanced above with respect to claim 1 from which claim 12 depends. Further, the Examiner asserts that Takiguchi describes correlating an average distance from every pixel in the first frame with every pixel in a corresponding region of interest in the second individual frame and determining the most consistent average distance between a region of interest in the first frame and a corresponding region of interest in the second frame. Contrary to the Examiner's assertion, Takiguchi describes comparing the pixel difference values of a template image (user-designated point as described above with respect to claim 8) and a search range and determining a minimum value thereof. Coordinates for the template image point and the matching point, i.e., determined minimum pixel value location, are registered. Accordingly, there is no correlation of an average distance from every pixel in a region of interest in the first frame with every pixel in a corresponding region of interest in the second frame. Takiguchi fails to describe comparing pixels in a region of interest in a first frame with pixels in a corresponding region of interest in the second frame. Also, there is no determination of the most consistent average distance between a region of interest in the first frame and a corresponding region of interest in the second frame as claimed in claim 12.

For at least this reason, and the reasons advanced above with respect to claim 1, the rejection of claim 12 is respectfully requested to be withdrawn.

The rejection of claims 13-15 under 35 U.S.C. 103(a) as being unpatentable over Burt in view of Yagi and Takiguchi is hereby traversed for at least reasons similar to those advanced above with respect to claim 1. The rejection of claims 13-15 is respectfully requested to be withdrawn.

All objections and rejections having been addressed, it is respectfully submitted that the present application should be in condition for allowance and a Notice to that effect is earnestly solicited.

Early issuance of a Notice of Allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

LOWE HAUPTMAN GILMAN & BERNER, LLP

Randy A. Noranbrock
Registration No. 42,940

USPTO Customer No. 22429
1700 Diagonal Road, Suite 300
Alexandria, VA 22314
(703) 684-1111
(703) 518-5499 Facsimile
Date: December 23, 2004
KMB/RAN/iyr